THE SOUTH AMERICAN *EREMODRABA* (BRASSICACEAE)

Eremodraba O. E. Schulz was originally described as a monotypic genus (Schulz, 1924) that was considered to be closely related to *Stenodraba* O. E. Schulz, *Alpaminia* O. E. Schulz, *Pelagatia* O. E. Schulz, and *Weberbauera* Gilg & Muschler (Schulz, 1936). The last four genera have been critically evaluated by Al-Shehbaz (1990); there I concluded that all four constitute a well defined, monophyletic genus recognized under the earliest name, *Weberbauera*.

The recognition of *Eremodraba* as a distinct genus is strengthened by the discovery of *E. schulzii*. The genus consists of glabrous annuals with sagittate-amplexicaul cauline leaves, conspicuously flattened fruits, yellow flowers, and filaments with papillose, dilated bases. In my opinion, *Eremodraba* is unrelated to *Weberbauera*. The latter includes cespitose, usually pubescent perennials with petiolate or sessile leaves that are neither sagittate nor amplexicaul, terete or slightly flattened fruits, white flowers, and glabrous filaments. *Eremodraba* apparently has no close relatives. It resembles only superficially the Peruvian monotypic *Dictyophragmus* O. E. Schulz that differs from *Eremodraba* in having conspicuously nerved septa, broadly winged seeds, and accumbent cotyledons.

Eremodraba was erroneously reported as suffrutescent herbs (Schulz, 1924; Macbride, 1938). There is a poor representation of the genus among the holdings of the major herbaria consulted. Both species of *Eremodraba* are apparently very rare and are restricted to mid altitudes in the deserts of nothern Chile and southern Peru. The following account aims to provide the basis for a better understanding of this very rare genus.

Systematic Treatment

Eremodraba O. E. Schulz, Pflanzenreich IV. 105(Heft 86): 362. 1924. TYPE: *E. intricatissima* (Philippi) O. E. Schulz.

Glabrous, somewhat fleshy annual herbs; stems much branched above. Cauline leaves auriculate to sagittate-amplexicaul. Inflorescences ebracteate, corymbose racemes, elongated considerably in fruit. Sepals oblong, glabrous, nonsaccate at base, erect to spreading. Petals yellow, spatulate. Stamens 6; filaments dilated and papillose at base; anthers oblong. Nectar glands confluent, subtending the bases of all stamens. Fruits oblong-lanceolate, dehiscent, flattened parallel to the septum, glabrous, straight or falcate; septum complete; stigma capitate, much broader than style. Seeds oblong, uniseriate to subbiseriate; cotyledons incumbent.

Key to the Species of *Eremodraba*

Fruits straight; fruiting pedicels divaricate, straight, 6–8 mm long; rachis of infructescence straight ..... 1. *E. schulzii*

Fruits falcate; fruiting pedicels reflexed, strongly curved, 2–3.5(–5) mm long; rachis of infructescence strongly geniculate ..... 2. *E. intricatissima*

1. Eremodraba schulzii Al-Shehbaz, sp. nov. TYPE: Peru. Depto. Arequipa: Yura, 2,500 m, 18 May 1957, *R. Hirsch P508* (holotype, GH). Figure 1.

Herba annua glabra; folia basales pinnatisecta, breve petiolata; folia caulina sessilia, integra vel dentata, sagitta-to-amplexicaula; racemi ebracteati; sepala oblonga, erecta, 2.5–3 mm longa; petala flava, spathulata, 3–4 mm longa; filamentae a basi papillosae; pedicelli fructiferi divaricati, recti, 6–8 mm longi; siliquae anguste oblongo-lanceolatae, compressae, rectae, 11–17 mm longae, 2–2.5 mm latae; stylus 0.2–0.3 mm longus; semina oblonga, 1.1–1.2 mm longa, 0.6–0.7 mm lata.

Annual herbs, glabrous throughout. Stems erect, branched above, 1–6 dm high. Basal leaves not rosulate, petiolate, pinnatisect, 4–7 cm long; lateral lobes oblong to linear, 0.5–2 cm long, 0.5–2 mm wide. Upper cauline leaves narrowly linear, strongly sagittate-amplexicaul at base, entire to dentate or rarely pinnatisect, 2–3.5 cm long, 0.5–1.5 mm wide. Inflorescences ebracteate, corymbose racemes, elongated considerably in fruit; rachis of infructescence straight. Sepals oblong, erect, scarious at margin, glabrous, 2.5–3 mm long, 1–1.3 mm wide. Petals yellow, spatulate, attenuate to clawlike base, 3–4 mm long, 0.7–1 mm wide. Filaments erect, dilated and papillose at base, 2–2.5 mm long; anthers ovate, 0.5–0.6 mm long. Fruiting pedicels divaricate, straight, glabrous, 6–8 mm long. Fruits narrowly oblong-lanceolate, flattened parallel to septum, straight, 11–17 mm long, 2–2.5 mm wide; valves glabrous, obscurely nerved, acute-acuminate at apex, obtuse at base; septum complete; style 0.2–0.3 mm long; stigma capitate,

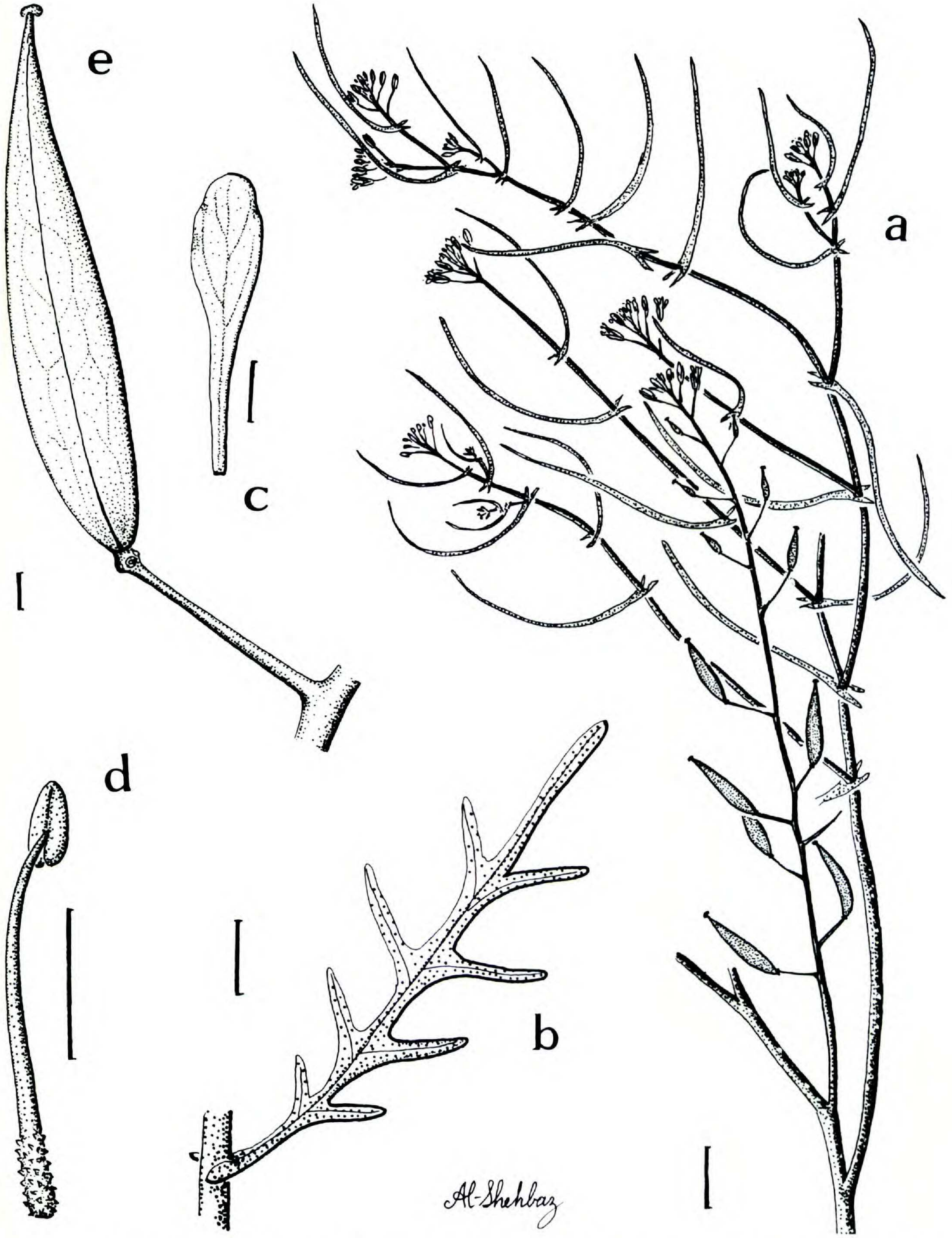

FIGURE 1. *Eremodraba schulzii.*—a. Portion of plant.—b. Lower cauline leaf.—c. Petal.—d. Stamen.—e. Fruit. Scales a, b = 1 cm; c–e = 1 mm. Drawn from the holotype except b, which was drawn from *Sandeman 3944*.

much wider than style. Seeds oblong, somewhat biseriately arranged, 1.1–1.2 mm long, 0.6–0.7 mm wide; cotyledons incumbent.

Additional specimens examined. PERU. DEPTO. AREQUIPA: southern slope of Chachani Mt., 3,050 m, *Hinckley 70* (B, GH); near the old road from Arequipa to Mollendo, *Sandeman 3944* (OXF).

Eremodraba schulzii, named in honor of Otto Eugen Schulz (31 Oct. 1874–17 Feb. 1936), an outstanding student of the Brassicaceae, was first named by Schulz (1936) as "*E.* ? *hinckleyana*." However, the latter name was invalidly published because it was not accompanied by Latin description or diagnosis. Furthermore, Schulz treated *Eremodraba* as monotypic and was doubtful in his assignment of *E. hinckleyana* to the genus because the material examined had no fruits. I have described the species as new and chose a type with fruits and seeds, rather than to validate Schulz's name, which was based on a flowering material.

2. Eremodraba intricatissima (Philippi) O. E. Schulz, Pflanzenreich IV. 105(Heft 86): 363. 1924. *Draba intricatissima* Philippi, Anal. Mus. Nac. Chile Bot. 8(2): 5. 1891. *Sisymbrium intricatissimum* (Philippi) Reiche, Fl. Chile 75. 1895. *Hesperis intricatissima* (Philippi) Kuntze, Revis. Gen. Pl. 3(2): 5. 1898. TYPE: Chile. [Región I] Tarapacá (as province): between Mocha and Guavina, *C. Rahmer s.n.*, 12 Mar. 1885 (holotype, SGO 63194 seen).

Annual herbs, glabrous throughout. Stems erect, much branched above, 1–5 dm high. Lowermost leaves not seen; middle and upper cauline leaves somewhat fleshy, oblong to linear, auriculate to sagittate-amplexicaul at base, usually entire, 0.7–5 cm long, 1–4 mm wide. Inflorescences ebracteate, corymbose racemes, elongated considerably in fruit; rachis of infructescence conspicuously geniculate. Sepals glabrous, oblong, erect to spreading, caducous or persistent, scarious at margin, 1.8–2 mm long, 0.9–1 mm wide. Petals spatulate, yellow, 2.5–3 mm long, 0.5–0.8 mm wide. Filaments dilated and papillose at base, 1.5–2 mm long; anthers ovate, 0.6–0.7 mm long. Fruiting pedicels strongly curved, reflexed, 2–3.5(–5) mm long. Fruits oblong-lanceolate, falcate, flattened parallel to the septum, (3–)5–10(–14) mm long, 1.5–2 mm wide; valves glabrous, obscurely nerved; septum complete; style 0.1–0.2(–1) mm long; stigma capitate, much broader than style. Seeds oblong, uniseriate to subbiseriate, 1.2–1.3 mm long, 0.6–0.7 mm wide; cotyledons incumbent.

Additional specimens examined. CHILE: [Región I] Tarapacá (as province), Pica, 1,400 m, *Werdermann 751* (E, G, GH, MO, UC); Depto. Tarapacá (now province Iquique), Noasa-Mamina, 2,700 m, *Werdermann 1573* (NY); Tarapacá, *Philippi s.n.*, 1888 (B).

There is considerable variation in the orientation and duration of sepals and in the length of fruits of *Eremodraba intricatissima*. Because of the scarcity of material at my disposal, I have refrained from recognizing these variants formally.

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—Ihsan A. Al-Shehbaz, *Missouri Botanical Garden, P.O. Box 299, St. Louis, Missouri 63166-0299, U.S.A.*